



HOT-IN-PLACE RECYCLING Mequon, WI

Presented by:
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TO USE HIR

OR

TO NOT USE HIR?

(that, is the question)

What I consider when making a
determination

Presentation Outline

Introduction

Past Practices

Fit HIR process to the road, not the road to HIPR

HIR – When does it make Sense (cents).

HIR and Politics

HIR – Is it construction or Maintenance?

HIR – When is it the right decision?

What type of surface treatment to use

Benefits of using HIR

Obstacles to using HIR

QUIZ

Introduction

Personal Background

20 years Navy Civil Engineer Corps

16 years Mequon City Engineer

4 yrs WI Rep for Gallagher Asphalt

City of Mequon

Located approx 20 miles north of Milwaukee

Situated on the shore of lake Michigan

Population of 22,000+

Area of 48 square miles

205 center line miles of roads

Bordering on extreme fiscal conservative

Affluent rural community

Zoning is 1 to 5 acre residential lot size

Road Program Past Practices

Full depth reclamation

Crack seal and overlay

Mill / Fill

Foam Injection

Fly Ash base stabilization

Simple overlay

Seal coat – chips and slag

Slurry Seal

Micro pave

Fit HIR to the road, **not** the road to HIR

- Based upon sound engineering and economics make the decision as to which roads should be done in a given contract or budget cycle and then determine which reconditioning or reconstruction process best meets the needs.
- Right Road, Right Time, Right Fix, Right Contractor



HIR - When does it make Sense (cents)?

Alternative to:

overlay

mill and fill

Road Infrastructure

Vertical Alignment Constraints

Long Range Plan for Area

Road characteristics do I look for when considering HIR

Structurally Sound – no more than 35% base patching

Adequate asphalt depth

Extent and Type of cracking– rubber less than 20% of road surface

Other Surface Defects: Cracking, Raveling, Rutting

Existing Surface Treatments

Service Condition Rating

OBSTACLES TO USING HIR

- * Reluctance to change - NIMBYism
- * Failure to understand the concept of Pavement Preservation and Life cycle benefit. Worst first is not the way to go
- * Resistance to being the first in the area to use HIPR
- * Concern with regard to funding.
- * Political support
- * Public support
- * Unless additional material is added during the operation it requires a surface treatment.
- * On thicker pavement sections reflective cracks reappear in “short” period of time.
- * Bidding competition – lack of
- * Required quantity to mobilize to an area.

Why did we decide to use HIR

1. Potential cost savings for an equivalent final product.
2. Reduced construction time.
3. Minimal impact to existing infrastructure.
4. Reduced traffic impact and congestion
5. Environment
6. Wanted to try something “new”

Pre HIR Road Conditions

Year: 2006

Area: Ranch, Hickory, Mulberry, Chestnut Subdivision

General Road Condition:

Local neighborhood streets

Rural cross section

Heavy cracking

Rutting

3" asphalt

6-8" stone base

SCR: 3.5

Alternatives Considered

H-S with 1.5" overlay

Crack Fill the significant cracks, wedge, and Slurry /
Chip Seal

Simple wedge with Overlay

Mill and Fill with 1.5" overlay

FDR with 3" overlay

Final Options

H-S with 1.5" overlay

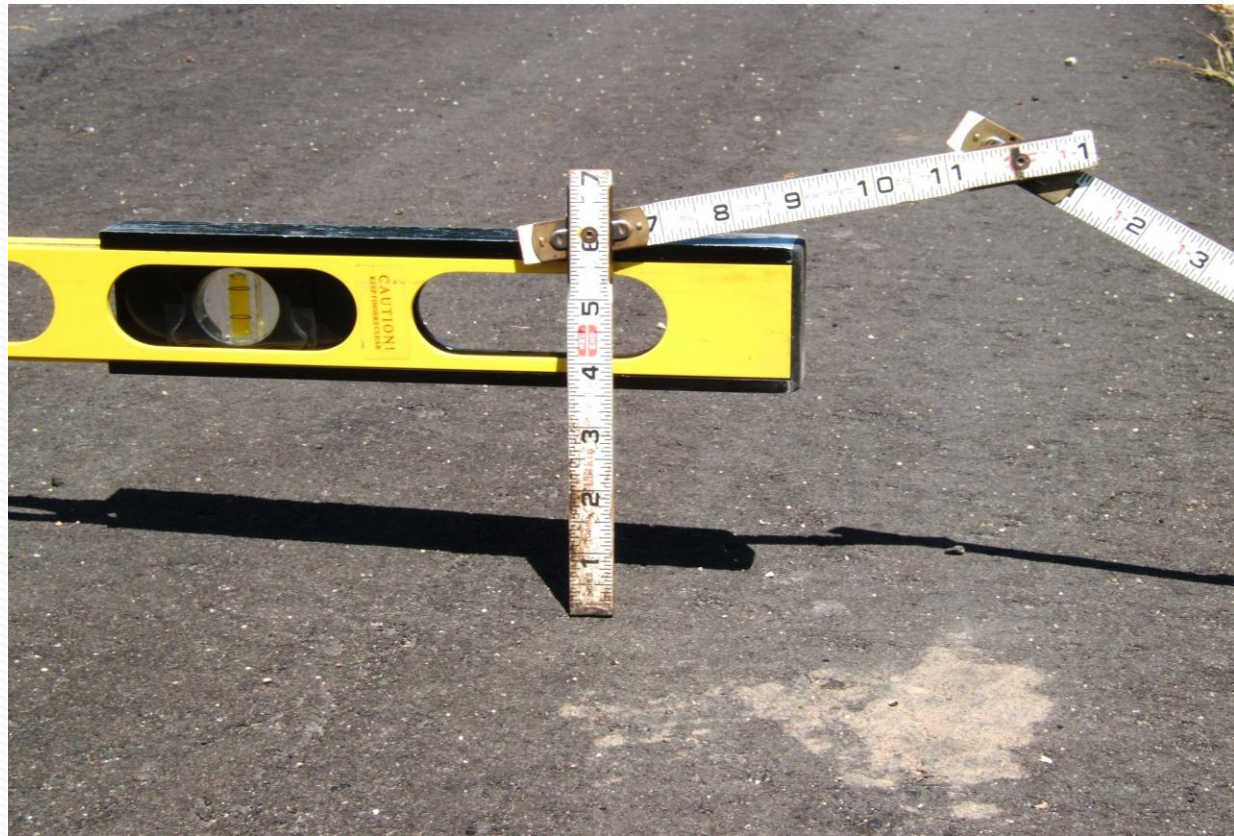
Mill and Fill with 1.5" overlay

Cost Comparison

H-S with Overlay: $\$3.15 + \$3.96 = \$7.11$

1.5" mill & Fill with over Lay: $\$2.07 + \$3.13 + \$3.96 = \9.16

Saved \$2.05 per SY = 22.44% = \$256,000







Post HIR Condition

Year: 2013

Age: 7 years

Area: Ranch , Hickory, Mulberry, and Chestnut

Current SCR: 8.5

Condition: Only Limited Longitudinal and Transverse Cracking

Asphalt Depth: 4.5 Inches – 3” existing treated with 1.5” HIR plus a
1.5” overlay

Base: 6 – 8 Stone





9-5-13



9-5-13



9-5-13



9-5-13













2008 Pre HIR Road Condition

Area: Solar Heights Subdivision

SY Quantity: 90,000

General Road Condition

Local Neighborhood Streets

SCR: 4.0, Age: 35+ yrs

Rural Cross Section

Flat – Drainage issues

Heavy Cracking

Large Quantity of Cracks

Rutting

Alligatoring

5+ inches of asphalt

6-8 inches of stone

Alternatives Considered

H-S with Chip Seal

H-S with 1.5" Overlay

Crack Fill the significant cracks, wedge, and Slurry / Chip Seal

Simple wedge with Overlay

Mill and Fill

FDR with 3" overlay

Final Options

H-S with Chip Seal surface treatment

Mill and Fill

FDR with 3" overlay

Cost Comparison

H-S with Chip seal: $\$3.15 + \$1.15 = \$4.30$

1.5" mill & Fill: $\$2.07 + \$3.96 = \$6.03$

FDR with 3" overlay = $\$1.25 + \$3.13 + \$3.96 = \8.34

Saved \$1.73 per SY = 28.7% = \$155,000

Saved \$4.04 per SY = 48% = \$363,600

















Benefits of HIR

- Effectively addresses the symptoms of deteriorated oxidized pavement.
- Substantial cost savings over more traditional techniques such as milling and filling can be realized.
- Environmentally friendly
- Minimal traffic impact – no road closure
- Significantly less interruption and impact.
- Time to completed finished product is reduced
- Cracks are interrupted and filled.
- Ruts and holes are filled, shoves and bumps are leveled, drainage and crowns are re-established.



Lessons Learned

Perform your due diligence

Follow up

Be careful about “pushing the envelope”

Try not to bend to political and/or resident pressure



THANK YOU

QUESTIONS